

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) Osteoconductive/osteoinductive titanium/titanium alloy implant comprising:

~~an additional element in the~~ an titanium oxide with anodic incorporation of an additional element, ~~obtained by anodic oxidation, characterised in, that~~

said additional element being a single one element ~~is~~ chosen from the group consisting of calcium, phosphor ~~or~~ and sulphur, wherein, and that

said implant exhibits a cross-section of ~~the~~ an osteoconductive/ osteoinductive oxide layer, which consists of a double layer structure of an upper porous layer of the titanium oxide with anodic incorporation of the additional element and a lower compact barrier layer of the titanium oxide with anodic incorporation of the additional element.

2. (original) Implant according to claim 1, wherein the porous upper layer exhibits an open structure comprising a plurality of shallow craters.

3. (currently amended) Implant according to claim 1, wherein the upper layer has a thickness below about 1000 nm ~~preferably 100-500 nm.~~

4. (currently amended) Implant according to claim 1, wherein the lower barrier layer has a thickness ranging between about 300 nm and 2000 nm, ~~preferably 600-1500 nm.~~

5. (currently amended) Implant according to claim 1, wherein the thickness of said osteoconductive/osteoinductive double layer-structured oxide containing an additional element is from 300 to 3000 nm, ~~preferably between 800 and 1500 nm.~~

6. (previously presented) Implant according to claim 1, wherein the lower barrier layer comprises less of said additional element than the upper porous layer.

7. (previously presented) Implant according to claim 1, wherein the lower barrier layer does not include any pores/craters or channels.

8. (currently amended) Implant according to claim 1, wherein the upper porous layer exhibits more than about 11 % porosity and less than about 30%, ~~preferably about 15%.~~

9. (previously presented) Implant according to claim 1, wherein the crystal structure of titanium oxide is amorphous and/or amorphous and anatase and/or amorphous, anatase and rutile.

10. (previously presented) Implant according to claim 1, wherein the relative concentration of the additional element incorporated into the anodic oxide layer formed on titanium/titanium alloy implants increases with the thickness of the oxide layer containing an additional element.

11. (currently amended) Implant according to claim 1, wherein the relative concentration of the additional element in of the oxide layer of said implant is between 1 % and 50 %₇ ~~preferably between 1 % and 25 %.~~

12-29. (cancelled).

30. (currently amended) Titanium/titanium alloy implant comprising: an additional element anodic incorporated in ~~the~~ an titanium oxide, obtained by anodic oxidation, wherein said additional element is a single one element chosen from the group consisting of calcium, phosphor or sulphur and that said implant exhibits a cross-section of ~~the~~ an osteoconductive/

osteoinductive oxide layer, comprising an upper porous layer and a lower compact barrier layer.

31-32. (cancelled).

33. (new) Implant according to claim 1, wherein the upper layer has a thickness in the range of 100-500 nm.

34. (new) Implant according to claim 1, wherein the lower barrier layer has a thickness ranging between in the range of 600-1500 nm.

35. (new) Implant according to claim 1, wherein the thickness of said osteoconductive/osteoinductive double layer-structured oxide containing an additional element is between 800 and 1500 nm.

36. (new) Implant according to claim 1, wherein the upper porous layer exhibits more than about 11 % porosity and less than about 15%.

37. (new) Implant according to claim 1, wherein the relative concentration of the additional element in of the oxide layer of said implant is between 1 % and 25 %.

38. (new) A osteoconductive/osteoinductive titanium/titanium alloy implant, comprising:

a cross-section of an osteoconductive/ osteoinductive oxide layer consisting of a double layer structure of an upper porous layer and a lower compact barrier layer,

each of said upper layer and said lower layer consisting of a titanium oxide anodic incorporating an additional element in the titanium oxide, said additional element being a single one selected from the group consisting of calcium, phosphor, and sulphur.

39. (new) The osteoconductive/osteoinductive titanium/titanium alloy implant of claim 38, wherein,

the additional element is calcium and the titanium oxide/calcium is present in the double layer with the upper layer being an open structure and the lower layer being a compact barrier structure.

40. (new) The osteoconductive/osteoinductive titanium/titanium alloy implant of claim 38, wherein,

the additional element is phosphor and the titanium oxide/phosphor is present in the double layer with the upper layer being an open structure and the lower layer being a compact barrier structure.

41. (new) The osteoconductive/osteoinductive titanium/titanium alloy implant of claim 38, wherein,

the additional element is sulphur and the titanium oxide/sulphur is present in the double layer with the upper layer being an open structure and the lower layer being a compact barrier structure.

42. (new) The osteoconductive/osteoinductive titanium/titanium alloy implant of claim 38, wherein, the additional element is combined with the titanium oxide as an ion moiety.